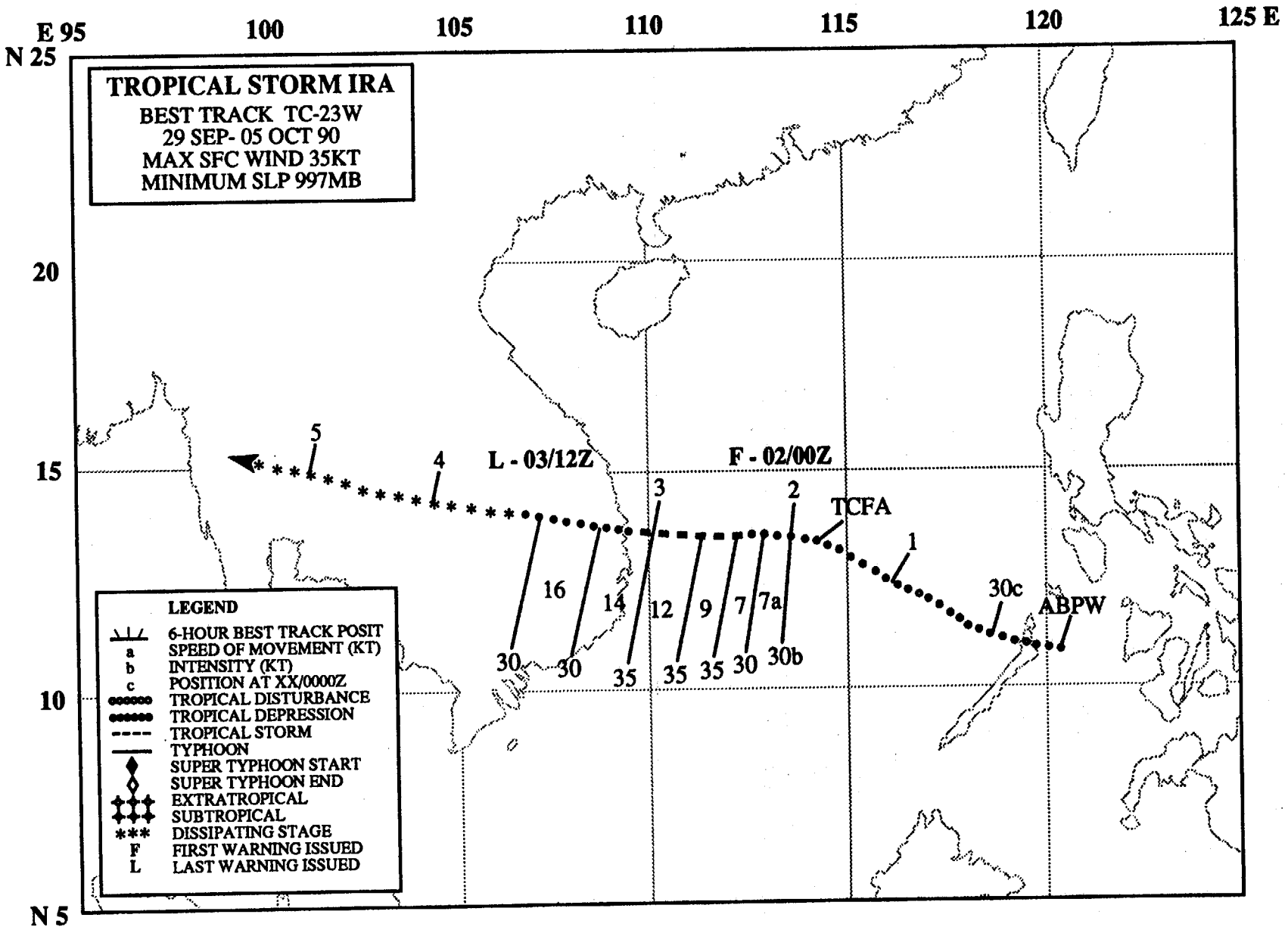
E 95
100
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TROPICAL STORM IRA
BEST TRACK TC-23W
29 SEP- 05 OCT 90
MAX SFC WIND 35KT
MINIMUM SLP 997MB
L - 03/12Z
F - 02/00Z
TCFA
ABPW
5
4
3
2
1
30c
16
14
12
9
7
7a
30b
30
30
35
35
35
30
LEGEND
6-HOUR BEST TRACK POSIT
a SPEED OF MOVEMENT (KT)
b INTENSITY (KT)
c POSITION AT XX/0000Z
TROPICAL DISTURBANCE
TROPICAL DEPRESSION
TROPICAL STORM
TYPHOON
SUPER TYPHOON START
SUPER TYPHOON END
EXTRATROPICAL
SUBTROPICAL
*** DISSIPATING STAGE
F FIRST WARNING ISSUED
L LAST WARNING ISSUED

TROPICAL STORM IRA (23W)

I. HIGHLIGHTS

Ira, the eighth tropical cyclone to hit Vietnam in 1990 and the last in a series of weak, highly sheared tropical systems in the South China Sea, formed in a broad area of convection near Palawan Island. The convective cloud mass tracked steadily westward in the deep easterly flow and made landfall at Qui Nhon Vietnam on the third of October.

II. CHRONOLOGY OF EVENTS

290600Z - First mentioned on the Significant Tropical Weather Advisory as an area of persistent convection with an estimated minimum sea-level pressure of 1009 mb.

011800Z - Tropical Cyclone Formation Alert based on 12 hours of persistent cirrus outflow,the consolidation of the central convection and first CI 1.0 estimate.

020000Z - First warning issued due to increased deep central convection and upper-level outflow.

021200Z - Upgraded to tropical storm because of a continued increase in central convection.

030600Z - Downgraded to tropical depression based on synoptic reports along the Vietnamese coast.

031200Z - Final warning issued due to land interaction, and severing of the low-level overwater moisture source.

III. TRACK AND MOTION

Ira developed in the monsoon trough near the southern Philippine island of Palawan on 29 September and tracked steadily westward on the south side of a persistent mid-level ridge centered over southern China (Figure 3-23-1). On 2 October, as the tropical cyclone approached the coast of Vietnam, increased mid- and low-level easterly flow accelerated Ira on shore over Vietnam.

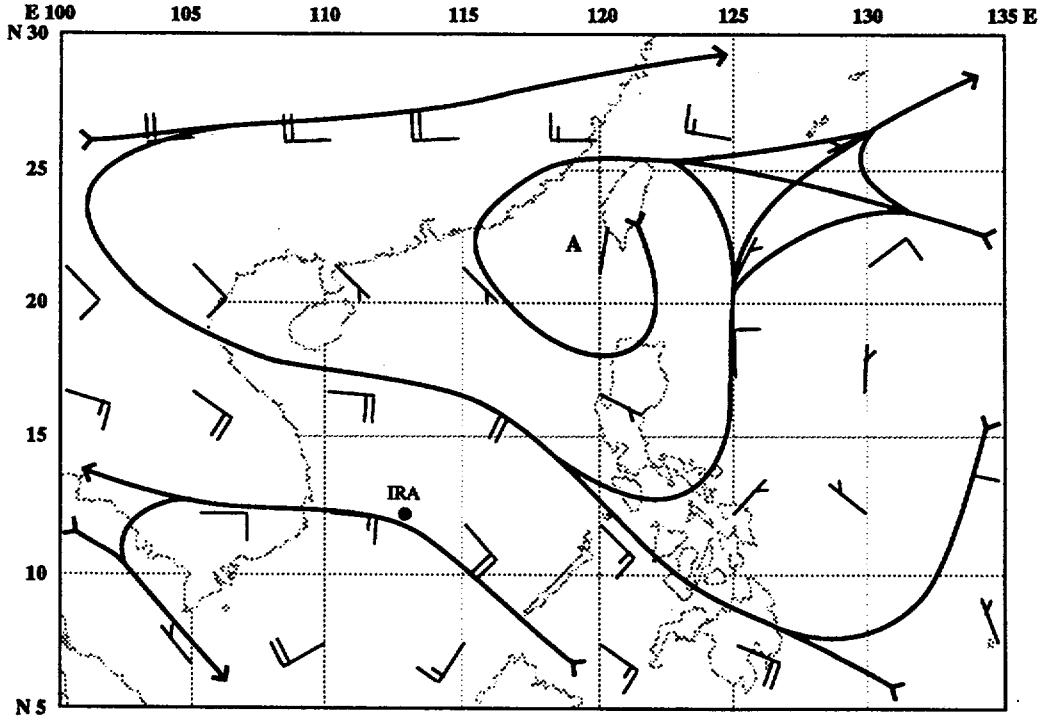

Figure 3-23-1. 500-mb NOGAPS analysis from 020000Z October, showing a persistent mid-level ridge positioned along the coast of southern China.

IV. INTENSITY

Ira's convective cloud mass was poorly organized throughout the life of the storm. The cloud system was embedded in an unfavorable environment of strong upper-level unidirectional southeasterly flow (Figure 3-23-2). Therefore, Ira was unable to develop an efficient outflow pattern during its early stages of development (Figure 3-23-3). Later, after the tropical cyclone moved over land on 3 October , its remnants tracked westward across virtually all of Indochina. There was even brief mention on the Significant Tropical Weather Advisory of a possible regeneration if the remnants moved into the Bay of Bengal.

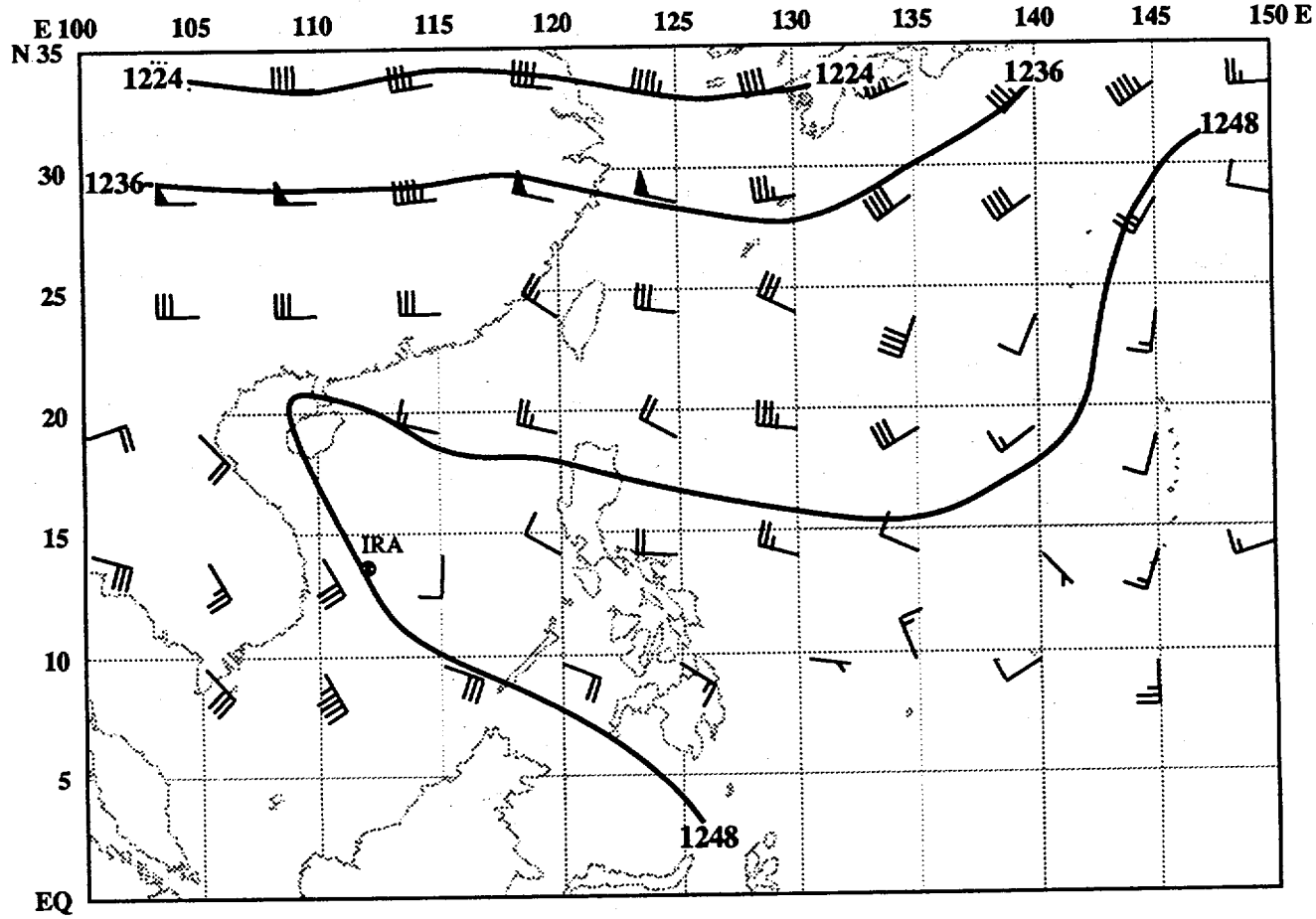

Figure 3-23-2. The 200-mb NOGAPS analysis with heights in decameters at 020000Z October, showing strong unidirectional southeasterly flow over the South China Sea which restricted the development of an efficient upper-level outflow pattern above Ira.

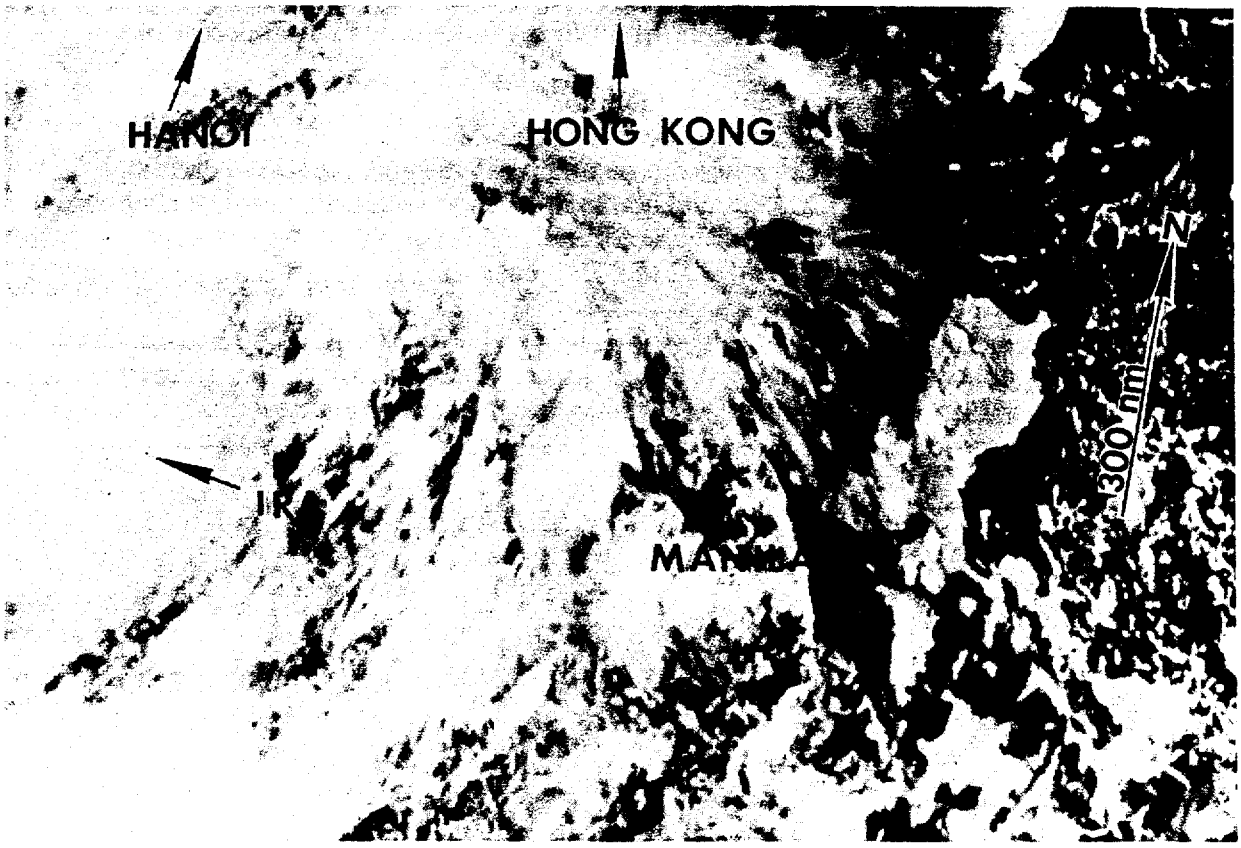

Figure 3-23-3. Ira approaches the coast of Vietnam (030607Z October NOAA visual imagery).

V. FORECASTING PERFORMANCE

The overall JTWC forecast performance is shown in Figure 3-23-4. The only major problems encountered were the result of conflicts between synoptic reports and satellite fixes. JTWC biased the initial warning positions toward the synoptic reports after the second warning, and the accuracy of the initial motion forecasts quickly improved.

VI. IMPACT

The following report was released by the **United Press International** in Bangkok,

A typhoon damaged 110,000 houses and killed seven people in the coastal provinces of Vietnam, official Radio Hanoi reported.

The radio, in a broadcast Monday, said the Central Flood and Typhoon Control Committee has reported that the eigth typhoon to hit Vietnam this year caused heavy rainfall in Thua Thien-Hue Province, 320 miles south of Hanoi.

"The average rainfall was between 12 to 27.5 inches," the broadcast said, according to a translation made available Wednesday.

"Heavy rains submerged 110 of the 145 villages and more than 110,000 houses, (and) killed seven people," the radio said.

The radio did not give the exact date when the storm hit the country.

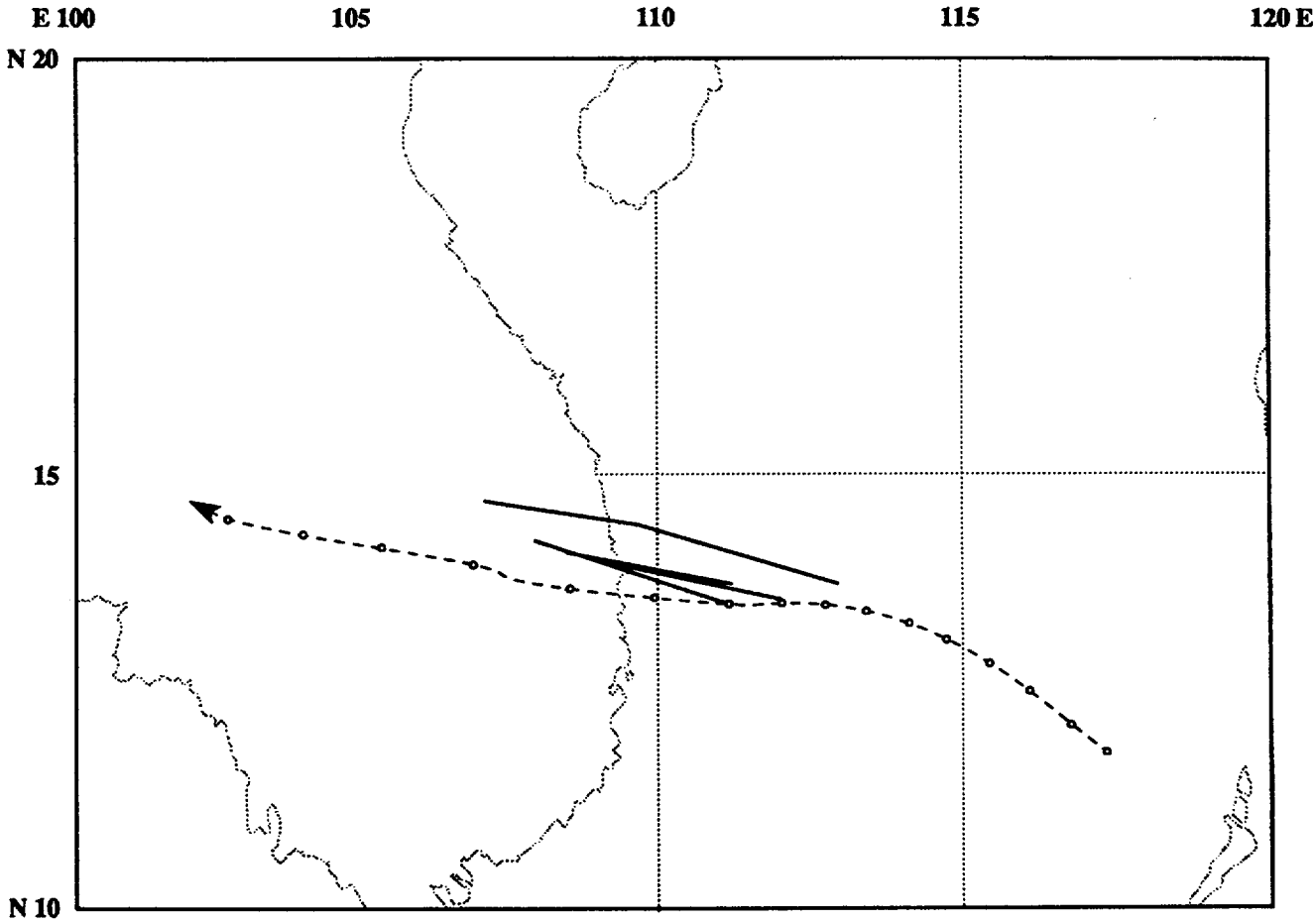

Figure 3-24-4. Summary of JTWC forecasts (solid lines) for Ira superimposed on the final best track (dashed line).